An Approach to Selecting Single or Multiple Social Risk Factors for Clinic-Based Screening

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INTRODUCTION

Increasingly, healthcare systems are screening for social risk factors and connecting patients with programs to mitigate their social needs and improve health outcomes.[1–4] A recent national survey demonstrated substantial variability in the selection of social risk factors for screening.[1] Many clinics appear to rely on practitioner opinion rather than patient-derived data to choose risk factor domains.[2–4] During a randomized controlled trial (RCT) in a federally qualified health center, we collected information about seven social risk factors from study participants.[5, 6] In this report, we present an analytic approach that such a clinic might use to guide the selection of social risk factors for screening.

METHODS

Study Setting and Participants. We conducted an RCT at First Nations Community HealthSource (FNCH) in Albuquerque, NM. FNCH provides medical, dental, and behavioral care, traditional healing, and support services for a racially and ethnically diverse clientele. The RCT assessed whether text or telephone messages improved adherence and blood pressure control among FNCH patients with hypertension but found no significant benefit.[5, 6]

Study Measures. At the initial study visit, participants completed a survey in English or Spanish to identify 7 social risk factors.[5] Six questions asked whether participants had enough food, healthcare, clothing, money to pay for utility bills, money to pay for debts, and a decent place to live. Response options were "always," "often," "sometimes," "almost never," "never," and "does not apply". We also asked whether lack of transportation had kept participants from medical appointments, meetings, and work, or from getting things for daily living. Participants were counted as having each risk factor unless they responded "never" or "no." Participants could self-administer the survey or request assistance from bilingual project staff.

Statistical Analysis. We aggregated participants from both groups in the RCT into a single cohort. We calculated bivariate correlations between social risk factors using Kendall Tau-b or Stuart Tau-c tests. We then assessed how many additional risk factors were present when each individual risk factor was absent, in order to determine the information that would be lost if screening were limited to a single risk factor.

Human Subjects. The randomized trial received Institutional Review Board approval from Kaiser Permanente and the University of Colorado. All participants provided informed consent.[6] Trial registration: clinicaltrials.gov (#NCT03135405)

RESULTS

Participant Characteristics. The 295 participants were predominantly middle-aged and female. Participants were predominately Latinx (53%), American Indian/Alaska Native (22%), or white (16%). Self-reported median annual household income was between $10,000 and $19,999.

Relationships Between Social Risk Factors. Participants most often reported lacking money to pay utility bills (53.6%), and least often reported lacking a decent place to live (16.9%). Correlation coefficients ranged from 0.54 (between having money to pay for food and having money to pay for clothing) to 0.07 (between lack of transportation and having money to afford healthcare) (Table 1). Individuals who "screened negative" for each of the individual risk factors had between 0.92 (SD 1.24) and 1.90 (SD 1.81) additional risk factors (Table 2).

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Table 1 Correlations Between Social Risk Factors

How often do you not have…	Prevalence (%)	Utility bills	Debts	Health care	Food	Transportation	Clothing	Place to live
Enough money to pay for utility bills	53.6	–						
Enough money to pay for debts	48.8	0.52	–					
Enough health care	41.7	0.21	0.26	–				
Enough food to eat	33.6	0.36	0.29	0.33	–			
Adequate transportation	25.1	0.19	0.12	0.07	0.16	–		
Enough clothing	25.1	0.35	0.32	0.34	0.54	0.17	–	
A decent place to live	16.9	0.36	0.21	0.27	0.45	0.13	0.50	–

All correlations were significant at $p < 0.01$, except for the correlation between transportation and healthcare ($p = 0.07$)

Table 2 Additional Social Risk Factors Present in the Absence of Each Individual Social Risk Factor

Social risk factor	Proportion of participants without this risk factor*	No. of additional risk factors in participants without this risk factor (mean, SD)	Prevalence of other social risk factors in participants without this risk factor†
Enough money to pay for utility bills	46.4%	0.92 (1.24)	Health care (28%), debts (20%), transportation (17%)
Enough money to pay for debts	51.2%	1.15 (1.49)	Utility bills (28%), health care (27%), transportation (21%), food (20%)
Enough health care	58.3%	1.40 (1.52)	Utility bills (42%), debts (36%), transportation (21%), food (20%)
Enough food to eat	66.4%	1.40 (1.38)	Utility bills (40%), debts (38%), health care (30%), transportation (18%)
Adequate transportation	74.9%	1.90 (1.81)	Utility bills (48%), debts (46%), health care (39%), food (28%), clothing (18%)
Enough clothing	74.9%	1.56 (1.43)	Utility bills (43%), debts (39%), health care (31%), food (19%), transportation (18%)
A decent place to live	83.1%	1.86 (1.66)	Utility bills (46%), debts (44%), health care (36%), food (24%), transportation (20%), clothing (15%)

**Proportion of participants without risk factor = 1-prevalence of risk factor*
†Social risk factors with prevalence ≥ 15% listed

DISCUSSION

In this analysis of data from an RCT in a primary care–based Urban Indian Health Organization, correlations among 7 social risk factors were moderate to weak. Even when each of the 7 risk factors was absent, other risk factors were commonly present. These findings suggest that selective screening for any single social risk factor in this setting would substantially underestimate the aggregate burden of social needs.

In 2018, only 24% of hospitals and 16% of practices screened for all five social risk factors identified by the Centers for Medicare and Medicaid Services as priorities for screening.[1] Clinics that have described their implementation of screening programs have relied on practitioner consensus to select social risk factors for assessment, rather than basing these decisions on data about the actual prevalence of social risk factors among their patients.[2–4] Although the findings of our study may not be generalizable to other settings, we suggest that a small survey of multiple risk factors within the clinic population and simple two-group analytic comparisons may help clinics identify the local prevalence of and relationships between social risk factors. This information can then guide decisions about an appropriate screening strategy for their patients.

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Author Contribution *Dr. Steiner had full access to the data in the study and takes responsibility for the accuracy and integrity of the data and its analyses.*
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Declarations:

This study was approved by the institutional review boards of Kaiser Permanente Colorado and the University of Colorado Anschutz Medical Campus

Conflict of Interest: *The authors declare that they do not have a conflict of interest.*

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